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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference E052946-PC	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/IT 02/00771	International filing date (day/month/year) 09.12.2002	Priority date (day/month/year) 04.10.2002
International Patent Classification (IPC) or both national classification and IPC B22C9/04		
Applicant MECCANICA BASSI S.P.A. et al.		



1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 9 sheets.

3. This report contains indications relating to the following items:

I ☒ Basis of the opinion
II ☐ Priority
III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
IV ☐ Lack of unity of invention
V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
VI ☐ Certain documents cited
VII ☐ Certain defects in the international application
VIII ☐ Certain observations on the international application

Date of submission of the demand 26.02.2004	Date of completion of this report 13.01.2005
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Noske, W Telephone No. +49 89 2399-8448 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/IT 02/00771

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-18 as originally filed

Claims, Numbers

1-23 received on 02.12.2004 with letter of 02.12.2004

Drawings, Sheets

1/4-4/4 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-12, 16, 20, 21
	No: Claims	13-15, 17-19, 22, 23
Inventive step (IS)	Yes: Claims	1-12, 20
	No: Claims	13-19, 21-23
Industrial applicability (IA)	Yes: Claims	1-23
	No: Claims	

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/IT 02/00771

1. D2 US-A-4 093 018, abstract and Figs. 2, 5,
discloses casting engine cylinder heads under use of a one piece core 50
consisting of an inner core 52 of sand, which is coated with a destructable layer 54
of e.g. foamed polystyrene and then joined with an outer core 62 of sand; the
complex corresponding shapes of the said core portions 52, 54, 62 hold the said
core portions together; the inner core portion 52 is made in a box, the coating of
the portion with the destructable layer 54 and the applying of the outer core 62 are
performed in separate boxes. Glue for joining the core portions is eliminated,
accuracy is improved and the casting process is simplified.
D3 EP-A-92 690, Figs. 2-5,
discloses use of composite cores for casting engine cylinder blocks; the composite
core consists of a main core 15 of sand which partly encircles an evaporation
pattern core 18 of foamed polystyrene, the latter being fixed in the core box 20
used for making the composite core by projections 18 and pins 27, 28 which are
movably within channels of the core box 20.
2. Performing the step of "laying at least one valve seat 14, 15 in a die" which is later
used for coating a core with a dissolving material (polystyrene) in a process of
casting an engine cylinder head in a mould receiving the said coated core is not
disclosed in any document and not derivable therefrom. The said novel step
credibly facilitates manufacture of engine cylinder heads.
Claims 1-12 and 20 thus comprise novel and inventive matter.
3. The following remarks are made with respect to claims 13-19 and 21-23:
 - 3.1. A "core box 20" (independent claim 13) cannot be characterized nor distinguished
from any known core box, e.g. that of D3, Figs. 4, 5, by "exhibiting seats 20" and
prints 20' for receiving and blocking into position secondary cores", the latter being
solely defined by intended use. Claim 13 lacks thus novelty and/or inventive step
with respect to prior art of any core boxes, e.g. D3.
Moreover, claim 13 does not comprise any feature relating to "valve seats 14, 15",
presence of which being the solely novel feature in independent claim 1. Claim 13
does thus not comprise any feature which is relevant to the invention of claim 1
and lacks thus both inventive step and unity, Rule 13 PCT, with the invention of
claim 1.
 - 3.2. A "die for coating ... cores" (independent claim 14) cannot be characterized nor
distinguished from any known die, e.g. that of D3, Figs. 4, 5, by the presence of
"movable pins 16, 17 for receiving and blocking secondary cores", the latter being
solely defined by intended use. Claim 14 lacks thus novelty and/or inventive step
with respect to any prior art relating to a die, e.g. D3. Moreover an objection to
inventive step and unity analogous to that raised against claim 13 applies to claim

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14.

- 3.3. A "die" (independent claim 15) cannot be characterized nor distinguished from any known die by "being configured for receiving at least one valve seat 14, 15". A novelty and/or inventive step objection applies thus also to claim 15.
- 3.4. There is no direct technical connection between the feature of an engine cylinder head "embedding at least one hollow insert 23 for forming a duct" (independent claim 16) and the invention of claim 1 relating to the valve seats 14, 15. Effect and inventive step as well as unity with claim 1, Rule 13 PCT, are missing.
- 3.5. An "engine cylinder head embedding a valve seat 14, 15" (independent claim 17) does not necessarily differ from a known engine cylinder head comprising a valve seat which was inserted after casting since the term "embedding" is not differentiating. Claim 17 lacks thus novelty.
- 3.6. An analogous objection applies to independent claim 18 which, moreover, lacks effect and inventive step as well as unity with claim 1 due to the therein missing connection with the invention of claim 1 relating to the valve seats 14, 15.
- 3.7. "Realizing a seat 16', 17' for a valve guide 16", 17" " (independent claim 19) is not distinguishing from prior art as mentioned in the introductory portion of claim 19 (i.e. D2 or D3). Claim 19 lacks thus novelty and/or inventive step. Moreover, the technical connection with the invention of claim 1 is missing such that inventive step and unity are not given.
- 3.8. Independent claim 21 only deals with a casting process comprising the steps of preparing seats 16', 17' for valve guides 16", 17" in the dissolving material and of embedding the valve guides 16", 17". The step of the invention of claim 1 relating to the valve seats 14, 15 is absent. Effect and inventive step as well as unity are missing for reasons analogous to those mentioned with respect to claims 13, 14 and 16-19.
- 3.9. The "casting equipments" of independent claims 22 and 23 are only characterized by features of the casting process, which features do, however, not differentiate the equipment from prior art. Claims 22, 23 lack thus novelty and/or inventive step. The objection to missing effect and inventive step as well as missing unity with claim 1 also applies to claims 22, 23.